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ABSTRACT

A study investigated the use of training needs assessment (TNA) by training and development practitioners in business and industry. It allowed for an assessment of both real TNA (practitioners' knowledge, observation, and experience) and ideal TNA (the literature and experts' opinions). A literature review focused on the concept of TNA, relationship of training to organizational objectives, and techniques that can be used in TNA. The sample of 210 individuals whose titles implied authority over training issues and directions within their organizations were chosen from members of the American Society of Training and Development, Southern Minnesota Chapter in the 1989 membership directory; 103 responded. The "sample discrepancy-format response mode" format was used for the questionnaire. Data were analyzed using descriptive statistics, matched pair T-test, analysis of variance, and chi-square test. The literature and experts indicated that if TNA is to have the desired impact, it should be systematic, continuous, performance related, client oriented, related to the organization's goals and objectives, flexible, timely, documented, and measurable. Despite the potential benefit, 26.5 percent did not use TNA. Twenty percent used the intuition of training staff as a foundation for training programs. TNA factors considered by 88 percent or more of respondents were centered around the components of job requirement analysis rather than factors of organization needs. (Appendixes include a list of 61 references and the interview questions and instrument.) (YLB).

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TRAINING AND DEVELOPMENT RESEARCH CENTER

Project Number Forty-Two

THE USE OF TRAINING NEEDS ASSESSMENTS IN BUSINESS AND INDUSTRY

Aigbehi Henry Oboh

December 1990

university of minnesota
DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION • ST. PAUL, MINNESOTA

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Abstract

This study investigated the use of training needs assessment (TNA) in business and industry.

The sample selected for this study included managers, administrators, presidents, directors, and others whose titles indicated direct authority over training direction in their respective organizations. They were chosen from the population of members of the Southern Minnesota Chapter of the American Society for Training and Development as listed in the 1989 membership directory. A total of 210 members were selected from the directory; 203 subjects with confirmed addresses were sent the questionnaire; 147 actually received it; and 103 returned the instruments (a response rate of 70%).

The major objective of the study was subdivided as follows:

1. To understand the concept of TNA.
2. To explore how TNA is being conducted in business and industry.
3. To determine ways of relating TNA to an organization's goals and objectives.

The literature and experts indicate that if TNA is to have the desired impact, it should be systematic, continuous, performance-related, client-oriented, related to the organization's goals and objectives, flexible, documented, measurable, and timely. If all of these factors are considered as the elements of an ideal TNA, then a measure of how training and development (T&D) practitioners actually perform the function

in their respective organizations depicts the real aspect.

As the results of this study show, there are discrepancies between the theory and practice of TNA. First, despite the potential benefit to be derived from conducting TNA, as many as 26.5% of the organizations do not use it. The chief reasons mentioned were "no time," "lack of sufficient resources," and "management skepticism."

Chapter 1

INTRODUCTION

Almost every life situation may be viewed as ranging from real to ideal. According to the definition in the Random House Dictionary of English Language (2nd ed., 1987), ideal is the "conception of something in its perfection. Existing only in imagination; not real or actual." Real is defined as "true; not merely ostensible, nominal, or apparent. Existing or occurring as fact; actual rather than imaginary, ideal, or fictitious."

Real, therefore, is the actual, obtainable condition, whereas ideal is the desired, wish-possible, or should be condition. These terms are frequently used to describe the relationship between classroom instruction and actual work performance, because the former is based on theoretical understanding and a controlled environment, and the latter is based on practical understanding and unique and varying environments.

The concept of training needs assessment (TNA), both real and ideal, is the subject of this paper, that is, this study was conducted to find out how training and development (T&D) practitioners actually use needs assessments in business and industry.

TNA is a comprehensive process used to identify and compare an organization's actual performance level (real) to its projected performance level (ideal or desired) (Olivas, 1983). It can be time consuming and costly, but it is an important

device in program development and delivery. Even its impact on human resource programs (especially training) in terms of efficiency, effectiveness, meaningfulness, and support is highlighted by its many definitions. Other characteristics that can affect the impact of TNA are the methodology employed for the process, when and who conducts it, how it is interpreted, and how the results are used. Trainers and administrators alike will agree that there is no need to waste time and money if a training program is not needed or if it does not link to organizational objectives.

Therefore, a process that helps T & D professionals to determine (a) what actual needs are, compared to perceived needs; (b) if an organization's problems are training related or not; (c) what content will be relevant; (d) who should be trained, and (e) how problems relate to the organizational objectives should be welcome. Usually it is called needs assessment, but it may be known by other names, for example, front-end analysis, need determination, or needs analysis. It is a process in which the needs of a particular organization are identified, analyzed, and evaluated for the purpose of planning a constructive intervention that is targeted to those needs (Steadham & Clay, 1985). Such a process may sound simple enough, but like many classroom theories, it might be easier to discuss than to implement (Moore & Dutton, 1978).

There is a distinction between environments and the type of needs assessment required. According to Gagne, Briggs, and Wager

(1988), tradition determines the state of affairs in public school systems, where there is an agreement about what ought to be learned and how well; therefore, a resulting gap between students' performance and school expectations signals a need for adjustment. But in business and industry, productivity data or job analysis determine training needs. In this case, difference between ideal and real performance signals a need.

The need to link training to the goals and objectives of the organization and to prove its necessity is becoming significantly apparent. Thus, as Herschbach (1988) concluded, employers are willing to pay for training only if it relates to their requirements, results in improved product quality, and fosters increased productivity. Toward these ends (i.e., in order to increase training effectiveness it is suggested that T & D professionals use TNA. TNA will also help T&D practitioners to determine deficiencies and to identify critical areas related to the ultimate performance of the organization.

For many reasons, the linear nature of the needs assessment process may change, and conducting, interpreting, and implementing TNA may prove complex. Such reasons may include time requirements, little (if any) client involvement, and the lack of knowledge of the needs assessment process. If these reasons are compounded with lack of finances, TNA becomes difficult.

However, practicing T&D professionals often praise needs assessment. The concept of the process by which training needs

are determined is undoubtedly attractive, but since the last studies by Mahler and Monroe (1952) and the Bureau of National Affairs survey (1962, 1969), it is not known to what extent needs assessment has been put to practical use in business and industry.

Problem Statement

Students in training and development departments hear much about the use of TNA as they prepare for positions in T&D professions. When it is conducted effectively, the benefits derived from TNA can be numerous, but it is also common to hear or read about T&D practitioners who do not use TNA before implementing new training programs. If this is true, the major reasons for not conducting TNA are not known.

In the cases where TNA is conducted, it is also important to know the factors considered and the level of importance attached to the indicators of performance problems.

Purpose

The purpose of this study was to investigate the use of TNA by T&D practitioners in business and industry in light of contemporary concepts. It allowed for an assessment of the real and ideal concepts of TNA; the ideal was the literature and experts' opinions, and the real was the practitioner's knowledge, observation, and experience. The following objectives and research questions guided the study:

1. To describe the concept of training needs assessment as held by T&D practitioners.

   A. What factors are considered in conducting TNA?

   B. What are indicators of training needs in the organization?

2. To describe the process of conducting training needs assessments used by T&D practitioners.

   A. Are they conducted? If they are not, why?

   B. When are they conducted and how often?

   C. Who conducts TNA in business and industry?

   D. What methods are used?

3. To identify ways in which T&D practitioners relate training needs assessment to organizational goals and objectives.

   A. What is the frequency of use of each factor in conducting TNA?

   B. How does the type of business affect TNA?

   C. How can the effectiveness of training be improved in the organization?

Definition of Terms

To clarify the focus of this study, the following terms are defined as they relate to TNA. The definitions are intended to clarify and distinguish between the various terms that are used, and sometimes confused, with TNA.

1. Need - A quantifiable, measurable gap in performance, attitude, or achievement between the ideal and the real--

requiring the establishment of two standards: the ideal (what ought to be) and the real (what it is) (Sarthory, 1977).

2. Training needs - The difference between a standard or desired performance and the present or actual performance in an organization that can be resolved through training.

3. Training needs assessment - An investigative technique that helps to identify the reasons for deficiencies in performance that will result in proposals for correcting them (Bjorkquist & Murphy, 1987).

4. Discrepancy - The difference that exists between some standard of value that is ideal and an actual status as it is (Mager & Pipe, 1970).

5. Task analysis - A "systematic definition and classification of task, subtask, job element, working condition and present standards for the purpose of improving job performance" (Yaney, 1974, cited in Hunt, 1986, p. 287).

6. Job analysis - The process of subdividing jobs into elements like tasks (Rodriguez, 1988).

7. Needs analysis - An information-gathering process about the root of performance gaps for training intervention (Kaufman, 1985).

8. Training - A presentation of controlled information and practice leading to performance of criterion behavior demonstrated by the learner that can be evaluated (Swanson & Sisson, 1985).

9. Client - "the individual who has the power to make decisions

about the work environment, has something to gain or lose from the success or failure of a training effort directed towards a business problem or opportunity" (Robinson & Robinson, 1989, p. 16).

Limitations of This Study

The sample selection was based on position titles that seemed to have authority over training issues and directions in their individual establishments as listed in the membership directory of the Southern Minnesota Chapter of The American Society for Training Development (ASTD). Those who may have had the authority to decide training issues, but whose titles were listed in an unfamiliar manner or totally omitted, did not have a chance to be considered during the sample selection.

Chapter 2

LITERATURE REVIEW

As mentioned in Chapter 1, there are numerous benefits to be derived from conducting a TNA. Therefore, this chapter reviews the literature on TNAs, and it addresses the concept of TNA, the relationship of training to organizational objectives, and the techniques that can be used in TNA.

The Concept of Training Needs Assessment

The concept of needs assessment, which is to provide detailed information about a problem and propose solutions, is found throughout most literature in the field, although it may be defined differently or similar terms may be used (Andrews & Goodson, 1980; Rossett, 1982, 1986; Jonassen & Hannum, 1986; Kaufman, 1982).

Reacting to the constant pressure of training program justification, which is heightened now more than ever (Brinkerhoff, 1989; Robinson & Robinson, 1989), T & D practitioners have suggested several quick, easy, generalized models of TNA. The purpose of the models, it appears, is to overcome time and financial constraints that might have erased TNA totally from the picture (Wircenski, Sullivan, and Moore, 1989).

Yet others like Bjorkquist and Murphy (1987) and Schwaller and Slipy (1985) have taken the concept and students from the

classrooms to the organizations, under the premise that most aspects of TNA can be taught by actual experience. In this case, the authors did keep in mind the interaction of corporate characteristics, individual personalities, and the perceived needs assessment training problems.

Of all the key tasks that must occur in training, needs assessment should be first, and it should not be an intuitive, quick-fix remedy or a spontaneous last-minute act. This notion is in keeping with Swanson and Gradous's (1986) idea of training subsystems, which consist of analysis, design, development, implementation, and control or evaluation.

On the one hand, some writers have assumed that needs assessment, as it relates to training and development, should be a prerequisite. This belief generates its own definitions, such as the use of TNA as (a) a means of soliciting ideas, opinions, facts, and feelings about performance-related problems (Rossett, 1985); (b) a process used to specify training requirements of the organization (Swierczek & Carmichael, 1985); or (c) a way of identifying skills necessary for mastering performance.

On the other hand, others have associated needs assessment with organizational philosophy. It is seen as a macro-level planning tool to assess the organization's contribution to the society or clients before the micro-level analysis is used to focus on problems like deficient performance (Witkin, 1984; Kaufman & Stone, 1983; Kaufman, 1982, 1983; Kimpston & Stockton, 1979). Which dimension the training professional will choose

will depend on what the problem is and where the interest lies, but each method suggests a different approach to the needs assessment process. What is interesting, however, is the lack of written materials about how training needs, like other kinds of needs (e.g., employees, equipment, facilities), are determined in most organizations.

Moore and Dutton (1978) agreed that there has been a gradual shift "toward a more scientific formalized approach to needs analysis" (p. 533). This systematic, objective determination of training needs should include the element of having been "conducted in a continuing, ongoing manner, coordinated and integrated with all other functions of the organization as a system" (p. 543).

Several processes have been used for determining training needs, including front-end analysis, needs analysis, job analysis, learning analysis, and TNA. These differing concepts used by various writers have resulted in divergent views and confusion about needs assessment (Hunt, 1986; Rodriguez, 1988). The process of TNA and task analysis, which is sometimes overlapping, can also be complementary. While trying to differentiate between needs assessment and task analysis, Hunt (1986) cited the work of Yaney (1974), describing task analysis as the systematic way of designing and classifying job elements, tasks, subtasks, working conditions, and standards to enhance the improvement of job performance. According to Hunt (1986), needs assessment can be used to determine a goal and to identify

discrepancies between the goal and the status quo. As a process of determining what is and what should be, needs assessment is a way of identifying the gaps between present and desired outcomes (Kaufman & English, 1979).

Closely linked to TNA is the more general question, what is the value of training? Feuer (1988) estimated that for U.S. corporations that employed one hundred people or more, the total projected T&D budget for 1989 was close to $40 billion, not including the expense of the attenders. Considering the amount of time and money expended for training, it is only a justifiable demand that it should be linked to the organization's concerns, goals, or objectives. Many T&D practitioners can recount frequent instances when their bosses ordered a type of training because of problems that were noticed or perceived (Robinson & Robinson, 1989). They further state that "managers often do not call us with a business problem. Rather, they call with a solution and request a specific training program" (Robinson & Robinson, 1989, p. 35). Based on such a "need," some T&D practitioners will quickly put together and execute a device that they may refer to as needs assessment, when in effect they are only finding facts to support perceived needs and better ways to implement "solutions."

The main point of this example is that these "problems" or deficiencies (whether performance or quality related) may not be understood well enough by superiors in order for them to identify likely causes or solutions. To these managers or supervisors,

every performance problem can be solved with "good" training delivered by the T&D practitioner.

When organizational deficiencies are suspected, Sellers (1985) described four stages by which they could be determined:

1. To assess competencies needed in the organization.
2. To assess competencies already existing with job incumbents.
3. To assess patterns in the deficiencies.
4. To assess if deficiencies can be corrected by training.

A detailed exploration of the preceding issues will help the T & D professional to determine if training or other organization development techniques are required. This is important because applying training as a solution to a problem not related to training will lead to a waste of resources and a lack of credibility regarding training as a method for improving organizational performance. Training that is not timely, that is not delivered to the needed audience, and that is insufficient in content is simply wasted (Sellers, 1985).

These four steps can have an impact on deficiency assessment because they can highlight:

1. The relevance of training to the job.
2. The improved performance in the organization.
3. The measurable quality and effectiveness of training programs.
4. The difference training made in the organization climate.

In addition to deficiency-focused TNA, Mitchell (1987) suggested that trainers will find future-oriented training needs assessment as a very important tool for overcoming the

frustration of classifying training as overhead cost. By conducting future-oriented training needs assessment, trainers adopt a proactive rather than reactive stance toward business strategies. Mitchell proposed that a combination of the following five factors be monitored to forecast future training needs:

1. Government regulation.
2. Labor.
3. Management planning (strategic).
4. Customer response.
5. Technological advances.

By monitoring these factors, the trainer will be able to gain control of the business environment in anticipation of and preparation for the future training needs of the organization.

This action will put the T&D practitioner in a position to provide training options to management (Mitchell, 1987). Mitchell suggested that monitoring is one way in which trainers can control the environment before training. The other ways are through in-house networking and public relations.

To enumerate some of the benefits of needs assessment, Robinson and Robinson (1989) described TNA as a means of determining training needs in an organization. The process involves information gathering that will enable trainers to make informed estimates of changes that will be desired or demanded by organizations. It will allow users to understand what is being practiced now and what is desired. TNA will build a solid base

for justifying the training program, will provide a starting point to measure program results, will establish a data base for future training needs, and will show how training saves or earns more money than it costs.

In broad terms, needs assessment "is a process in which the needs of a particular organization are identified, analyzed, and evaluated for the purpose of planning a constructive intervention that is targeted to those needs" (Steadham & Clay, 1985). It should form the basis from which the human resource development (HRD) professional can build responses, such as programs and recommendations to decision makers.

Relating Training Needs to Organization Objectives

Training efforts are normally approved with the motive of improving performance in an organization. To effectively carry out these training efforts and to successfully have an impact on the perceived need, the HRD practitioner should use TNA to ascertain (a) needs for performance improvement, (b) the nature of the perceived performance problem, and (c) the extent to which the problem affects the organization's performance level (Gropper & Ross, 1987).

Human resource development, a term originally conceived by Nadler in 1969 (Stephen, 1987), is defined as an organized learning experience in a definite time period to increase the possibility of improving job performance or growth. To distinguish HRD from adult education, Nadler (1969) stated that

the learning is provided by employers to employees or by employees to nonemployees, if that is the goal of the organization.

The concept was further redefined in an attempt to distinguish HRD from the following words that are commonly associated with it.

1. Training - when the learning is related to the present job.
2. Education - when preparation is for future jobs different from present jobs.
3. Development - when learning is for individual growth not relating to present or future job requirements.

Learning needs, in contrast, is a broad term that can be divided into (1) educational needs, which is the difference between individual desires or aspirations and what is real (Knowles, 1980) and (2) training needs, which exist because employees lack the skills and knowledge to satisfactorily perform an assigned job task (Laird, 1985).

A common assumption by some upper-level managers is that most performance problems are associated with training or learning needs. As Harless (1975) and Mager and Pipe (1984) showed, performance deficiencies can result from many factors other than training or learning needs, including equipment, faulty incentives and programs, and unsystematic methods and procedures. There may also be a lack of knowledge or skills that if implemented could significantly increase performance despite the current satisfaction level (Odiorne, 1970). Robinson and

Robinson (1989) summarily attributed performance deficiency causes to the learner, the learner's manager, and the organization.

For locating problem/opportunity areas, several writers have also suggested using the organizational element model (OEM) (Kaufman, 1985; Rodriguez, 1988), which consists of the following five major components:

1. Input - resources, goals, objectives, and laws.
2. Process - implementation and input management.
3. Product - result (external and internal) achieved through use of input and process.
4. Output - product or service offered to the society or client.
5. Outcome - the impact from what is delivered to the society in the output stage.

However, according to Kaufman (1985), it is a well-known fact that organizations succeed based on what useful service or product they deliver to their clients.

When a performance problem is envisioned and training appears to be the only solution, it will be critical for the T & D professional to consider:

1. What content should be taught.
2. Who should receive the training and at what level of the organization.
3. How the training relates to organizational effectiveness and efficiency.

Thus, the goals of the total organization must be understood

as well as how to accomplish them using the current skills, abilities, and products available in the organization. By conducting needs assessments, the T & D professional will find information concerning the organization's direction and goals to be less of a mystery.

Needs assessment also includes a process by which instructional objectives are derived from organizational, operational, and individual needs. Two currently popular approaches for linking objectives and needs are (a) performance analysis and (b) competency assessment. In both approaches, the training professional examines past and present behaviors and issues to better understand and plan strategic solutions (Robinson & Robinson, 1989). Assessing future training needs over a period of time should be the goal of a T&D practitioner, that is, linking TNA with the strategic planning of the organization.

Ulschak (1983) defined strategic planning as a method of determining the long-term direction of the organization, which involves several processes. Four basic questions answered through the process are:

1. What do you want to do?
2. What future factors might affect your ability to do it?
3. How well equipped are you to deal with these factors?
4. How can you achieve what you want relative to those factors likely to affect achievement?

Needs assessment, as a method for determining what performance

deficiency or competency areas must be corrected, could be tied to strategic planning to enable a successful attainment of the strategic objectives.

The outcome of this planning may be longterm, like a program design, or shortterm, like a single learning experience, lesson, or unit. It may also focus on discrepancies between possible performance and potential performance. Other forms of strategic planning proposed by Gilbert (1978) and Boyatzis (1982) include the following major areas of inquiry:

1. What do we want to look at?
2. What should be expected?
3. What is actually found?
4. What can be done about any discrepancy between what is and what should be?

Making training functions more precise and linking them to strategic planning of the organization will not only make training more fulfilling, but more meaningful (Robinson & Robinson, 1989; Rothwell, 1984). Thus, how should a training professional respond if a manager asks, "What are the most important training needs that exist in our organization?" or "How does one determine the needs?" These are the types of questions that HRD practitioners should be asking themselves and their peers. Many other circumstances highlight the need to understand current and changing employee performance requirements. Some examples are as follows:

1. What types of skills are new employees bringing with them,

what are the trends regarding their skills, and what does the future look like?

2. What areas of organizational performance can be moved from "acceptable" to "outstanding" solely by increasing the skills of employees responsible for that performance?
3. Are there people external to the organization whose performance has a direct impact on the organization's success but who lack the necessary skills to perform?
4. What significant laws, policies, and/or procedural changes will be implemented or are being planned (e.g., affirmative action)?
5. What current programs, series, equipment, and/or products will be expanded or shifted internally within the organization so that other employees will become involved for the first time?
6. What new technology, or technology new to the organization, will be employed or is being planned?
7. What positions are filled internally with employees who have been performing different tasks?
8. Are there groups of employees whose performance is below the expected or established standards?

Engaging in the process of finding answers to these questions will help provide the T&D practitioner with the necessary information to be proactive.

The Techniques Used

"For every complex problem there is a solution that is

simple, concrete, direct--and wrong." (Mencken cited in Sprinthall & Collins, 1988, p. 480).

Every performance problem in an organization can't be training related, contrary to some chief executives' expectations, and that is why needs assessment is most valuable. TNA separates training problems from other problems that may be affecting the performance level of the organization, for example, the work environment, motivation, organizational structure, and reward systems (Bjorkquist & Murphy, 1987). Bjorkquist and Murphy (1987) and other writers cited in Moore and Dutton (1978) went on to stress the need to overcome the temptation of applying training solutions without knowing the root of the problem. They concluded by saying that the understanding and identification of underlying reasons for performance shortcomings requires TNA. This idea can be further summarized in the words of Kaufman and English (1979):

> Picking the correct and appropriate problem and finding the best solutions are the keys to educational success. Needs assessment is a critical tool for doing just that. Needs assessment is a basic tool for productive, rational and logical thinking about problems and solutions. It is a tool to be used to functionally separate means and ends. (p. vii)

Needs assessment is finding out whether training is needed, and if it is, what type and by whom. If training is defined as improvement in job performance by increasing an employee's level of job-related skills or knowledge, a person will not have to

wonder too long what it all means. In fact, Mahler and Monroe (1952) described the lack of knowledge, skills, and attitudes as a training need.

TNA involves the use of "investigative techniques that help to identify the reason for deficiencies in performance that will result in proposals for correcting them" (Bjorkquist & Murphy, 1987, p. 32).

Bjorkquist & Murphy (1987) further pointed out that the dynamics of the needs assessment process and the uniqueness of each situation during which it will be conducted present some special problems. TNA must be tailored to fit the organization in which it will be conducted and the characteristics of the particular problem to be studied. Therefore, these authors advised that T & D professionals, as assessors, must be familiar with a variety of information-gathering and analysis techniques. Assessors must also be flexible in defining the nature and scope of a problem and the time line for completing the steps of the process.

The desired level of performance may not be totally agreed upon by all of the managers, but without being an arbitrator, an assessor must determine a performance level that is defensible, an action that requires the T & D professional to understand the requirements necessary to attain desired performance.

The study by Mahler and Monroe (1952) summed up most previous research on needs assessment. In conclusion, their study showed that:

more than sixteen different techniques were reported as being extensively used to determine training needs. Informal methods such as "what the boss requested," "hold conferences," and "talk with supervisors" were most frequently mentioned. About one company in ten reported the use of systematic research techniques. (p. 1)

In another study attempting to investigate training methods, Wood (1956) focused on the use of questionnaires in determining training needs and concluded that there was no sufficient information to link the process with research methodology.

Between 1962 and 1969, the Bureau of National Affairs (BNA) (Personnel Policies Forum Survey series) addressed the issue of training needs determination. In 1962, the BNA's survey number 66 (Training Rank and File Employees) reported that 41 percent of the organizations that participated in the study used observation and job performance analysis. Then, in 1969, the BNA's survey number 88 (Training Employees) showed an increase from 41 percent to 49 percent in the number of organizations using these two methods.

There are numerous benefits to be gained by conducting a TNA, as the majority of the literature reveals. What remains an issue, however, is the application of systematic research techniques when the T & D professional conducts the TNA. These systematic, sophisticated approaches to TNA may not be commonly applied by T & D professionals because of numerous restrictions such as a lack of time, finances, and knowledge. The best

instrument only demonstrates the use of techniques for comprehensive, intense need determination (Mahler & Monroe, 1952).

Also, it is crucial to categorize identified needs as either training and nontraining. Training needs are perceived if there is (a) lack of knowledge about equipment, (b) lack of skills in running equipment, (c) evidence of an unawareness of full equipment potential, and (d) noted fear of injury from equipment used. Nontraining needs include (a) faulty equipment, (b) inappropriate standards, and (c) wrong incentives (Steadman & Clay, 1985). These authors suggested the following as the basic process steps for conducting needs assessment:

1. The awareness that something is not what it should be.
2. Collection of data to clarify the problems and issues.
3. Meaningful analysis of data.
4. Reporting or feedback of results.

Discussed in this section are a variety of formats that have been used for conducting TNA. First, it should be noted that data are gathered about the existing performance and then compared with objectives or other references that are determined by management or others external to the organization.

Olivas (1983) suggested six steps regarding the performance of TNA:

1. Determine the purpose and objective of the needs assessment.
2. Identify the kind of information needed to define the need; identify a solution, specify those needing training, and plan

delivery or training.

3. Design the data gathering approach, including the use of informal and formal mechanisms.
4. Gather data.
5. Analyze and verify the data with the aim of uncovering patterns and trends.
6. Set training priorities.

Rossett (1989), in turn, suggested the following step-by-step outline of TNA.

1. Determine if it is a macro- or micro-needs assessment challenge. (If macro, talk to the leader(s) and employees and read financial/production reports; if micro, check for a performance problem or a new policy, technology, or procedure.)
2. If it is a performance problem, what is the stage, source, or technique.
3. If introducing innovation, what stage, source, or technique is needed for knowledge skill and attitude (KSA).
4. Report results throughout.

Kaufman (1972) and Southard (1974) listed the following components of assessing needs, which is a condensed version of many years of research (Kaufman, 1970-77).

1. Generate goals and rank in order of importance.
2. Determine the present status of each goal.
3. Identify the discrepancies between goals and present status.
4. Assign priorities to discrepancies.

McGehee and Thayer (1961), cited by Sleezer (1989) and Moore and Dutton (1978), presented the following three-facet format of a training needs determination program designed to produce a systematic and objective result: (a) organization analysis, (b) operation analysis, and (c) person analysis.

Organization analysis emphasizes the usefulness of training within the organization objectives, analysis of human resources, efficiency indices, and the climate of the organization. Operation analysis involves job data, standards of performance, skill, knowledge, and attitude necessary to job performance. Person analysis determines individual employee performance level on the job. Based on this framework, Moore and Dutton (1978) recommended the following data sources for each facet:

1. Organization analysis: (a) organization goals and objectives, (b) manpower inventory, (c) skill inventory, (d) organizational climate indices, (e) analysis of efficiency, (f) changes in system or subsystem, (g) management request or interrogation, (h) exit interview, and (i) management by objective (MBO) or work planning and review systems.
2. Operation analysis: (a) job descriptions, (b) job specification or task analysis, (c) performance standards, (d) perform the job, (e) observe job or work sample, (f) review literature concerning the job, (g) ask questions about the job, (h) training committees or conferences, (i) analysis of operating problems, and (j) card sort.

3. Person analysis: (a) performance data or appraisals, (b) observation or work sample, (c) interviews, (d) questionnaires, (e) tests, (f) attitude surveys, (g) checklists or training progress charts, (h) rating scales, (i) critical incidents, (j) diaries, (k) devised situations, (l) diagnostic rating, (m) assessment centers, (n) coaching, and (o) MBO or work planning and review systems.

Some common techniques of conducting needs assessment include those shown in Figure 1.

Methods commonly used	Literature sources				
	(A)	(B)	(C)	(D)	(E)
Assessment centers		X			
Survey (standard/custom design)	X	X		X	X
Subject matter experts			X	X	
Task analysis		X			
Review of work sample	X			X	
On-site observation	X	X		X	X
Conference with intended trainees			X		
Review of reports (annual/perform	X			X	
Training advisory committees					X
Interviews (structured/unstruct.)	X	X		X	
Conference with client/users			X		
Meeting with upper management	X		X		X
Test results				X	
Review of current research	X				
Group discussion				X	X
Conference with trainees			X		
Review of records	X	X		X	

Figure 1. Methods commonly used for TNA

Literature sources: (A) Bernhard and DiPaolo (1982); (B) Mitchell (1987); (C) Goldstein (1986); (D) Lampe (1986); (E) Mahler and Monroe (1952).

Nominal group is another technique for conducting TNA, in which a group of people nominate problems and issues that deserve attention. Although the nominal group technique is mostly a combination of several traditional methods, its strength lies in the use of noninteracting individuals who contribute original ideals rather than reactions (Harrison, Pietri, & Moore, 1983).

Problems/Issues

The number of techniques available for conducting needs assessment, does not preclude potential problems, as can be seen from the work of Ulschak (1983). While summarizing the contributions by Moore and Dutton (1978) and Leach (1979), Ulschak outlined the following potential problems: (a) raising expectations and not responding to them, (b) obtaining unexpected sensitive information, (c) putting inappropriate energy and resources into assessment, (d) misusing information from the assessment, (e) using a crisis management approach, (f) not having periodic assessment, (g) not coordinating needs assessment with other functions, (h) failing to distinguish between needs and wants, (i) assuming all needs can be met through training, (j) uncritically accepting management's perceptions, (k) depending on intuition, and (l) underutilizing needs in program selection.

Chapter 3

METHODOLOGY

The purpose of this study was to investigate the use of TNA by T&D practitioners in business and industry in light of contemporary concepts. It allowed for an assessment of both real and ideal TNA, with the ideal being the literature and experts' opinions, the real being the practitioner's knowledge, observation, and experience. The following objectives guided the study: (a) to describe the concept of training needs assessment as held by T&D practitioners, (b) to describe the process of conducting training needs assessments used by T&D practitioners, and (c) to identify ways in which T&D practitioners relate training needs assessment to organizational goals and objectives.

From previous research findings, it was found that less than 50 percent of surveyed organizations used any (one form or another, or a combination of) methods to determine training needs (Bureau of National Affairs Survey, 1962, 1969), and roughly 10 percent actually used systematic research techniques (Mahler & Monroe, 1952).

A review of the literature sought information about the meaning and type of TNA used in business and industry, the relationship between TNA and the organization's goals and objectives, and the various TNA techniques that could be used. It was also pointed out that TNA should play a vital part in an organization's training programs.

Population

The population from which the sample was drawn for this study was made up of members of the American Society of Training and Development, Southern Minnesota Chapter (ASTD/SMC), as listed in the 1989 membership directory. There were a total of 648 names in the directory. Members whose titles implied authority over training issues and directions within their organizations were selected as a purposeful sample for this study. This group totaled 210.

The choice was made to select only members whose titles indicated authority because they were the ones who could make decisions about conducting TNA or using the information derived from TNA. The selected titles and their frequencies are shown in Appendix C.

Each of the 210 individuals was sent a first-class letter (see Appendix A), which described the study and explained a questionnaire would be sent within three weeks. This letter was sent for two reasons: (a) to verify participants' current addresses, and (b) to help ensure participants' cooperation. Seven of the letters were returned, resulting in a final sample of 203.

Instrumentation

The measuring instrument was developed from the information derived from interviews conducted with seven experts (see Appendix D for list of experts) and modeled after the examples

used in Mahler and Monroe (1952) and Bureau of National Affairs survey 66 (Training Employees) (1962). The "sample discrepancy-format response mode" format (Johnson, 1986) was used. This approach was useful because it permitted the consideration of the present and future state of some variables on the survey instrument.

The following questions were addressed with the instrument.

1. Is TNA conducted? If it is not, why?
2. What factors are considered in conducting TNA?
3. What are the components included in TNA?
4. What are the indicators of training needs in the organization and their levels of importance?
5. Who conducts TNA in business and industry?
6. What techniques/methods of TNA are used?
7. When is TNA conducted and how often?
8. Can the type of business the organization is involved in affect TNA?
9. How is status of training improved in an organization?

The instrument's content underwent a validation review by a team consisting of five members of ASTD/SMC, and two professors and two graduate students from the Department of Vocational and Technical Education at the University of Minnesota. This review procedure was used to ensure that each item was relevant and that each item contributed to the desired information.

The final questionnaire was pilot tested by four members of ASTD/SMC, and 15 graduate students and three undergraduate

students from the University of Minnesota to check for clarity, readability, time required, and errors. The final instrument (see Appendix E) was sent to 203 members of the sample. Also included were a self-addressed, stamped envelope and a cover letter (see Appendix B) explaining the study and urging them to respond as soon as possible.

Reliability and Data Treatment

To check the reliability, 20 of those who received the questionnaire were randomly selected and sent copies of the same instrument on the fourth week, which included a letter explaining that this was a reliability check. Nineteen completed instruments were returned within one week. By comparing responses and using correlation, a reliability coefficient of .968 was obtained.

The data were analyzed using basic descriptive statistics, matched pair T-test, analysis of variance, and a chi-square test, which was applied at an alpha level of .05.

Chapter 4

RESULTS AND DISCUSSION

This study investigated the use of TNA in business and industry in light of contemporary concepts and practice.

The purpose of the study resulted in the following objectives and research questions:

1. To describe the concept of training needs assessment as held by T&D practitioners.
    A. What factors are considered in conducting TNA?
    B. What are indicators of training needs in the organization?
2. To describe the process of conducting training needs assessments used by T&D practitioners.
    A. Are they conducted? If they are not, why?
    B. When are they conducted and how often?
    C. Who conducts TNA in business and industry?
    D. What methods are used?
3. To identify ways in which T&D practitioners relate training needs assessment to organizational goals and objectives.
    A. What is the frequency of use of each factor in conducting TNA?
    B. How does the type of business affect TNA?
    C. How can the effectiveness of training be improved in the organization?

Response Rate

Two weeks after the letters of introduction were sent to 210 selected participants, a period that allowed for address verification, a total of 203 questionnaires were sent to individuals with assumed correct addresses since their letters han not been returned.

Three weeks after the questionnaires were sent out, a total of 87 responses were received. By the fourth week, the 116 participants who had not yet responded were contacted by telephone, and the following explanation summarizes the responses:

*1. Nine were on leave (maternity, sick, of absence, etc.).
*2. Twenty-six were no longer employed by the organization.
*3. Twenty-one could not be reached (phone disconnected, did not answer, etc.)
4. Twelve did not want to participate.
5. Sixteen responded after telephone contact.
6. Eight claimed survey was returned, but it did not arrive within four weeks.
7. Twenty-four were left a message, but did not return either calls or surveys.

The asterisks indicated those that were dropped from the sample because it was assumed they did not receive the questionnaire.

Overall, a total of 103 responses were received, of which 98 cases were usable for data analysis. The response rate of 70

percent is based on the number of instruments assumed received (147) versus total actually returned (103). The analysis is based on 95.15 percent of the total return that were usable (98/103), which is 66.67 percent of the assumed received (98/147).

Demographics

A brief description of the respondents' characteristics were provided in response to the following questions.

1. What is your current job title? This question was asked to determine if the titles were consistent with those listed in the membership directory, the prerequisite that qualified them for participation in the study. The respondents were told to write in their current titles. Table 1 shows the frequency distribution of the titles reported and their percentages based on the number of questionnaires returned.

Table 1

Distribution of Titles in Directory and Questionnaire

Titles	Directory	Quest'nnaire	Percentage
Manager	50	45	45.9
Director	24	26	26.5
President	13	10	10.2
Other	05	10	10.2
Administrator	06	07	07.1
Total	98	98	100

Note. Percentages are based on returned questionnaires.

A deviation from the titles originally selected was partly due to the following reasons: (a) some of the respondents gave the instrument to the person in their organization directly responsible for the function and (b) some respondents had different responsibilities that required them to change their titles.

2. Do your responsibilities include approval and disapproval of new training programs in your organization? This question was asked to test the assumption that those chosen actually dictated training directions in their various organizations. The respondents were provided with a yes or no answer option.

Table 2 indicates that the selection was 92.9 percent correct in the assumption that those selected were responsible for approval or disapproval of training directions and were therefore expected to have a need for TNA.

Table 2

Authority Level of Respondents

Approve/Disap	Frequency	Percentage
Yes	91	92.9
No	07	07.1

Results

Questions in this section were designed to focus on the use of TNA in the respondent's organization.

1. Is TNA used in your organization? If not, rank in order of

importance the reasons it is not used.

The respondents were asked in a forced-answer format if TNA was used in their organization. The answer to this question helped to decide which respondents would continue with the survey. The percentage shown was based on the usable returned questionnaires.

Those who indicated that TNA was not used in the organization were not considered to have valid views on the practical applications of TNA. For the purpose of this study, these respondents were asked only to rank the reason why it was not used.

As shown in Table 3, 73.5 percent of the respondents indicated that they used TNA in their organizations, while 26.5 percent did not.

Table 3

Use of TNA in Surveyed Organizations

Response	Frequency	Percentage
Yes	72	73.5
No	26	26.5

The 26 respondents who did not use TNA were provided with a list of four possible reasons and an "other" category and asked to rank in order of significance on a scale of 1 (high) to 5 (low) why TNA was not used. The results are shown in Table 4.

Some of the "other" reasons given most often included "one

person organization--no staff," and "a consultant working for other firms."

Table 4

Rank Order of Reasons for Not Using TNA

Reasons for Not Using TNA	n	Mean	Rank
No time	14	1.64	1
Lack of resources	15	2.00	2
Other	14	2.21	3
Management skepticism	09	3.33	4
Lack of information	10	3.40	5

2. What factors are considered in conducting TNA?

In conducting TNA, certain factors ought to be considered to provide guidance and validity for the entire process as indicated in the literature. A list of these factors was provided to the respondents to indicate the level of use (consideration) on a scale of 1 (never) to 5 (always). Table 5 shows the distribution of mean values assigned to each factor by the respondents.

The higher the mean value obtained from the calculation, the more likely the factor was considered in conducting TNA. According to the respondents, all factors were considered but in various degrees.

Table 5

Rank Order of TNA Factors Based on Level of Consideration

Factor	n	Mean	Rank
Type of training	71	4.52	1
Employee needs	72	4.46	2
Organization goal	71	4.38	3
Management view	72	4.28	4
Business needs	71	4.18	5
Expect'n of outcome	71	4.13	6
Nature of job	71	4.11	7
Rel'nshp to perfmc.	71	4.10	8
Time requirement	72	3.92	9
Climate of org.	72	3.90	10
Resources available	72	3.89	11
Strategic planning	72	3.88	12
Org. miss'n stat'mt	71	3.83	13

"Factors" as used here refers to the relationship of major elements to an organizations' performance improvement and T&D, whereas "components" refers to combinations of two or more factors.

3. What are the components included in TNA?

The factors that needed to be considered in conducting TNA were grouped into the following headings: (a) organization information, consisting of information relating to organizational goals, strategic planning, organization mission statement, business needs, and climate of the organization; (b) job analysis

and requirements, consisting of type of training needed, management views, employee needs, and nature of the job to be performed; and (c) miscellaneous (e.g., logistics, measurement, etc.), consisting of time management, resources available for the project, expected outcome, and relativity to performance.

Table 6 shows the distribution of average mean values assigned to components (underlined) included in TNA as indicated by the frequency of use. The average of the mean value of all factors grouped under each component was calculated to derive the overall mean (underlined) for that component.

The mean values obtained from the frequency of use for the components showed that job related analysis and requirement components were the ones most often included.

Table 6

Mean Values of TNA Components

Components	Mean
Job related analysis	4.34
Type of training	4.52
Management views	4.28
Employee needs	4.46
Nature of job to be perfm.	4.11
Org. information	4.03
Organization goals	4.38
Strategic planning	3.88
Org. mission statement	3.83
Business needs	4.18
Climate of the organization	3.90
Miscellaneous	4.01
Time requirement	3.92
Resources available	3.89
Expected outcome	4.13
Relationship to performance	4.10

4. What are the indicators of training needs in the organization and their level of importance?

The identification of a performance opportunity and/or problem in an organization is a major concern to all members of the organization who want it to succeed. The respondents were provided with a list of 12 indicators as supplied by the literature and asked to indicate on a scale of 1 (low) to 5 (high) the level of importance they attached to each (see Table 7). Based on the numerical value assigned to each indicator by the respondents, the mean was used as a mark of consideration.

Table 7

Indicators of Performance Problems and Their Level of Importance

Indicator	n	Mean	Rank
Skill and knowledge	72	4.43	1
Line mgmt complaint	70	3.79	2
Performance opport.	71	3.73	3
Employee morale	72	3.61	4
Innovations	68	3.57	5
Deviations from projected target	69	3.20	6
Product'ty reports	70	3.16	7
Waste of materials and time	71	2.97	8
Failure analysis	67	2.84	9
Records	68	2.71	10
Repair/rework cost	67	2.70	11
Employee test reslt	70	2.51	12

The top five indicators as shown in Table 7 in descending order are skills and knowledge required to perform the job, line management complaints, performance opportunities, employee morale, and innovations.

5. Who conducts TNA in business and industry?

The respondents who indicated that TNA was used in their organizations were asked if they personally conducted training needs assessment in order to determine their involvement in the process. Otherwise, they were asked to list the title of the person responsible for conducting TNA. Eighty-seven percent of the respondents indicated that they personally conduct TNA, and the remaining 13 percent claimed that others were responsible for the function and supplied the title of the persons as consultants, training staff, and line managers.

6. What methods or techniques are used?

The respondents were given a list of 24 possible methods or techniques that could be used to determine training needs in the organization; an "other" category was provided since the list may not have been exhaustive. They were to indicate on a scale of 1 (never) to 5 (often) their current and desired use of each method.

For both current and desired use, 60 percent of the respondents did not respond to items about Delphi technique and nominal group techniques. They omitted the item completely.

Table 8 shows the ranking of mean values as indicated by the respondents regarding both current and desired uses of the techniques. The question was asked to see if there was a difference between what was currently considered and what was desired. The rankings were based on means that are reported in Table 9.

Table 8 shows the differences between the current and desired uses of the TNA techniques. For example: (a) management request, which ranked number one became less desirable as it fell to fourth rank, and (b) analysis of job requirement, currently ranked seventh, rose to the second rank in desired uses.

Table 9 is the matched pair T-test. This was used to test for mean differences in both situations (current and desired uses) with 5 percent significance level. At this level of significance, all methods except "management request" and "other" showed a statistically significant difference between the means of the current and desired use by the respondents.

There was a positive trend toward desired uses of the methods, except for "intuition of training staff" method, which reflected a negative trend.

Table 8

Rank Order of Current and Desired Uses of TNA Techniques

Methods: Current use	Rank of means	Methods: Desired use
Management request	1	Consid'tn chng. in bus
Interview struc./unst.	2	Analysis of job reqmt.
Consid'tn of chng. in bus. (current/projtd)	3	Interviews (struct/unstructured)
Intuition of training personnel	4	Management request
Customer comments	5	Customer comments
Employee request	6	Performance standard
Analysis of job reqmt.	7	Skill/persn'l invent'y
Performance standard	8	On-site observation
Custom des. svy./qst.	9	Employee request
Skill/persn'l invent'y	10	Custom des. svy./qst.
Task analysis	11	Task analysis
Staff conferences	12	Training committees
On-site observations	13	Intuition of trg. per.
Mgmt. by objective	14	Staff conferences
Training committees	15	Critic. incident anal.
Standard svy./questnn.	16	Mgmt. by objective
Critic. incident anal.	17	Work sample analysis
Work sample analysis	18	Standard svy./questnn.
Nominal group techniq.	19	Safety record analysis
Safety record analysis	20	Assessment center
Review of ann. report	21	Nominal group tech.
Delphi technique	22	Delphi technique
Standard tests	23	Standard tests
Assessment center	24	Review of ann. report

7. When is TNA conducted and how often?

The respondents were asked to indicate the frequency at which they conducted TNA from a list of four options.

Table 10 shows that 50 percent of the responses were in the "other" category. All who gave this response indicated by write-in that they conducted TNA only when "need arises." Conducting needs assessment on a yearly basis was indicated by 39.7 percent, on a quarterly basis by 8.8 percent, and on a monthly basis by 1.5 percent.

8. How does the type of business affect TNA?

A list of industrial and business groupings, as defined by the Bureau of Labor Statistics (1990-91), was supplied for the respondents to use in classifying their firm. The five groups were later regrouped into two categories: service producing and goods producing. Then, using analysis of variance, the type of business was used to test (1) the difference in means for the frequency of considerations for each factor (see Table 11) and (2) the difference in means for the importance of indicators of training needs (see Table 12).

As Table 11 shows, none of the means for the factors considered by the respondents in both businesses were significantly different at the alpha level of .05.

Table 9.

Matched Pairs T-test of Current and Desired Use of Methods

Methods/techniques - use	Mean		n	t	Prob
	Curr	Des			
Management request	4.15	4.06	67	-0.90	.37
Staff conference	2.85	3.29	62	3.74	.01*
Analysis of job reqmt.	3.23	4.20	64	7.95	.01*
Consider'n of chngs. in	3.65	4.49	65	7.14	.01*
Interview (stuc./unstr.)	3.72	4.18	65	5.09	.01*
Standard survey/questionnaire	2.35	2.77	65	4.14	.01*
Custom design survey/questionnaire	3.05	3.58	65	5.23	.01*
Intuition of trng. staff	3.62	3.35	65	-2.07	.04*
Safety records analysis	2.13	2.75	63	6.55	.01*
Assessment centers	1.60	2.60	63	6.74	.01*
Work sample analysis	2.32	2.90	62	5.10	.01*
Review of annual reports	1.77	2.14	62	4.00	.01*
On-site observations	2.77	3.71	65	7.70	.01*
Delphi technique	1.82	2.29	51	4.03	.01*
Nominal group technique	2.21	2.58	52	3.43	.01*
Critical incident	2.38	3.10	60	6.57	.01*
Task analysis	2.92	3.56	60	6.26	.01*
Customer comments	3.34	4.02	64	5.80	.01*
Skill/personnel	3.02	3.80	64	6.57	.01*
Mgmt. by objective (MBO)	2.67	3.06	64	3.40	.01*
Performance standard	3.17	3.88	65	5.64	.01*
Standard tests	1.70	2.18	61	4.85	.01*
Employee request	3.25	3.69	65	3.91	.01*
Training committees	2.60	3.54	63	6.47	.01*
Other	4.00	4.25	04	1.00	.39

Table 10

Frequency with Which TNAs are Conducted

Frequency	Percentage
Yearly	39.7
Monthly	01.5
Quarterly	08.7
Other	50.0

The indicators of performance problems were tested against the type of business (service or goods producing) of the organization to determine the relationship of the business type

Table 11

The Relationship of Business Type to TNA Factors

Factors considered	Services		Goods		F	Prob.
	n	Mean	n	Mean		
Organizat'l goals	44	4.341	27	4.444	.236	.629
Type of training	44	4.568	27	4.444	.499	.482
Time requirement	45	3.867	27	4.000	.272	.604
Strategic planning	45	3.800	27	4.000	.683	.411
Management views	45	4.289	27	4.259	.021	.884
Employee needs	45	4.489	27	4.407	.208	.650
Org. miss. statmt.	44	3.750	27	3.963	.498	.483
Nature of job	44	4.205	27	3.963	1.12	.294
Resources avail.	45	3.889	27	3.889	.000	1.000
Business needs	44	4.068	27	4.370	1.99	.163
Climate of org.	45	3.822	27	4.037	.886	.350
Expected outcome	44	4.091	27	4.185	.206	.651
Relat'shp to perf.	44	4.023	27	4.222	.890	.349

to the importance of each indicator by analysis of variance (ANOVA).

Table 12 shows that there is a statistically significant difference in the means for three of the indicators used by the respondents.

These indicators are (a) failure analysis, (b) rework/repair records, and (c) waste of materials.

Table 12

The Relationship of Business Type to Performance Problem Indicators

Importance of indicator	Services		Goods		F	Prob.
	n	Mean	n	Mean		
Records	42	2.524	26	3.000	2.39	0.12
Failure analysis	41	2.610	26	3.192	3.91	0.05*
Innovations	43	3.488	25	3.720	0.62	0.43
Employee morale	45	3.533	27	3.741	0.68	0.41
Skills & Knowledge	45	4.444	27	4.407	0.03	0.84
Line mgmt complaint	44	3.705	26	3.923	0.82	0.36
Productivity report	44	2.977	26	3.462	3.20	0.07
Employee test reslt	44	2.546	26	2.462	0.08	0.78
Rework/repair rec.	42	2.310	25	3.360	13.3	0.01*
Deviation frm trgt.	44	3.023	25	3.520	2.83	0.10
Performance opport.	45	3.667	26	3.846	0.85	0.47
Waste of materials	45	2.711	26	3.423	6.73	0.01*

* Significant at alpha level of .05

Chi-square analysis was also performed on the distribution of frequencies to further determine how the use of TNA in an organization was related to the type of business (see Table 13).

Table 13

The Effect the Type of Business Has on the Use of TNA

Use of TNA	Service produc.		Goods producing	
	N	%	N	%
Yes	45	68.2	27	84.4
No	21	31.8	5	15.6

Table 13 indicates that a higher percentage of the goods-producing industries used TNA than did service-producing industries. The Chi-square value was 2.899 and a probability of 0.088. At alpha level of .05, these differences were not statistically significant.

9. How can training status be improved in the organization?

This question was designed to elicit from the respondents the various ways they use potential outcomes of TNA to improve the status of training in their organizations.

The respondents were provided with a list of potential TNA outcomes and asked to indicate by check mark which ones they were currently using to improve training status in their

organizations. Table 14 shows the distribution of TNA outcomes currently used by the respondents in descending order.

Table 14

Potential Outcomes of TNA Used to Improve Training Status

Potential outcomes used	n	%
Tie trng into overall co. strategy.	72	93.1
Soliciting trainee input about exp.	72	81.9
Provide mission stat'mt for unit	72	61.1
Hold annual interview w/upper mgmt.	72	56.9
Involve sr mgmt content dvmt./del.	72	54.2
Have executive overview new prog.	72	45.8
Write a return-on-investment report	72	44.4

As seen in Table 14, 93 percent of the respondents indicated that they tied training to overall company strategies and goals, whereas only 44 percent indicated that they write a return-on-investment report.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The objective of this study was to investigate the use of TNA in business and industry in light of contemporary concepts.

It was intended that those selected for this study would be in positions that allowed them to decide training directions in their organizations. It was found that 92.9 percent of the respondents approved or disapproved new training programs.

The literature and experts indicated that if TNA is to have the desired impact, it should be (a) systematic, (b) continuous, (c) performance-related, (d) client-oriented, (e) related to the organization's goals and objectives, (f) flexible, (g) timely, (h) documented, and (i) measurable (Herschbach, 1988; Moore & Dutton, 1978; Robinson & Robinson, 1989; Rossett, 1985). If all of these factors are considered as the elements of an ideal training needs assessment, then a measure of how T&D practitioners actually perform the function in their respective organizations depicts the real aspect.

The Concept of Training Needs Assessment

As the results show, there were some discrepancies between the theory and practice of TNA. First, despite the potential benefit to be derived from conducting TNA, 26.5 percent of the organizations did not use it. The reasons most frequently given were "no time," "lack of sufficient resources," and "management

skepticism."

The highest percentage of respondents indicated that they performed TNA as needs arise. This was interpreted to be a reactive response, which should not be encouraged. Instead, it is recommended that a proactive orientation should be encouraged to help training and development professionals anticipate the future in current planning. A proactive approach would assist the T&D professional to become a resource when strategic planning of the organization occurs.

Timely conducting of TNA may have made a difference in how it was being used and how many of the factors were considered. If it was conducted just in time for the strategic planning session, some of the information would have been helpful in planning for the future, that is, if all the information was considered in perspective. If it was conducted a week before the program was to be delivered, then the variables that would have been considered within that short amount of time would be minimized.

The Techniques Used

As indicated by the results, 20 percent of the respondents used the intuition of the training staff as a foundation for training programs. This direction could and should be supported by other methods that could also serve to improve the outcomes of TNA.

Respondents reported differences in the rankings of

currently used methods and those desired. Some interesting examples were (a) "consideration of changes in business (current and projected)," ranked third as a current method (3.65) and first as a desired method (4.49); (b) "Analysis of job performance" moved up from seventh among current methods (3.23) to second in desired methods (4.20).

The "intuition of training personnel," which ranked fourth as a current method (3.62), was ranked thirteenth among the methods desired (3.35). Some methods or techniques remained unpopular in both categories (current and desired uses), partially because the respondents thought they were complex or did not know about them. The trend, it appears, is a desire by the respondents to take an objective look at their organization's training needs by methods that could lead to efficient job performance and productivity enhancement. This approach is recommended.

Relating Training Needs to Organization Objectives

As was shown in Table 6, TNA factors considered by 88 percent or more of the respondents were centered around the components of job requirement analysis rather than factors of organization needs. If identified training needs are to have a positive impact, it is recommended that TNA should be planned with a reasonable balance of organizational needs and miscellaneous needs (e.g., logistics).

Robinson and Robinson (1989) emphasized the benefit of

properly identifying the client and involving the client if the training needs assessment is to have any impact. So far, this does not seem to be a priority for the respondents.

There may be more than one indicator of a particular problem, and the use of the most informative sources could save already scarce resources. Also, depending on the type of problem or opportunity, certain indicators will provide more valuable information than others. The type of business (service- or goods-producing) was related to this point, as shown in Table 12 of this study, and the indicators tended to have different uses in the two types of business. Awareness of these differentiations may help those conducting TNA to better identify problems and their causes.

Implications

To say that 73.5 percent of the surveyed organizations used training needs assessment does not explain how well these assessments were conducted. Several methods were highlighted in this study, but none was described as the best that could be used. These different methods and their contexts of use have essentially led to confusion among T&D professionals on how to conduct an effective TNA. A study is needed to help training and development practitioners put the various methods into perspective and to reduce the existing confusion.

As one of the potential outcomes of TNA used to improve training status in their organization, the respondents rated

"write a return-on-investment report" as the last they would use. It does not indicate value of the process.

Some reasons for such a rating may be that training results are intangible, that they are difficult to translate into numbers, and that most of the outcomes take time to materialize unlike, other business investments. Therefore, T&D professionals should direct more emphasis toward understanding and using TNA both now and in the future.

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Appendix A

Date:

Name
Title
Address

Dear Last Name:

Very shortly you will be receiving a questionnaire in the mail regarding the use of Training Needs Assessment (TNA) in business and industry. The survey is being used in research efforts to study the relationship between what is been taught about the subject (TNA) and what is practiced in the real world.

Your name was selected from the 1989 membership directory of the American Society for Training and Development, Southern Minnesota Chapter (ASTD/SMC) as someone whose knowledge and experience of the subject is valuable by virtue of your position at work and professional association.

Your participation will make this study a success and will be highly appreciated. Please, if you have any comment regarding this study call 612-624-1214 during business hours. Thank you.

Sincerely,

Henry Oboh (Researcher)

David Bjorkquist (Research Adviser)

Appendix B

Date:

Name
Title
Address

Dear Last Name:

Training needs assessment (TNA) is a topic that is frequently discussed as one prepares for a profession in training and development. Practitioners seems to reiterate its importance when used in determining the training needs of the organization. Its, however, not known how well the process of training needs assessment is used in businesses and industries today.

As a member of a professional organization that supports training and development concerns (American Society of Training and Development) and practitioner in that field, your opinions will be helpful in determining the extent of use and identification of aspects of TNA instruction needing improvement.

Your individual response will be completely confidential and the combined data will be reported in summary form and will be available at the Training and Development Research Center of the University of Minnesota or by request. If you want to have a report sent to you, include a business card or write 'CRR' followed by your name and address on the back of the return envelope. The survey identification number will be removed once it has been received.

If you have any questions please write or call. The telephone number is (612) 624-1214. Thank you for your assistance.

Sincerely,

Henry Oboh
Researcher

David Bjorkquist
Professor and Adviser

Please take a few minutes right now to complete and return it.

Appendix C

List of Titles

Managers

Education Program Mgr.
Information serv, HRD Program Mgr.
Human Resource Mgr. (10)
Sales and Marketing Mgr.
Mgr. Stores Training & CBT
Personnel Mgr. (4)
Employee Development Mgr. (2)
Mgr. Hardware Training
Mgr. Management Development (5)
Mgr. Sales Training
Mgr. Mrkt Training & Services Mgr.
Mgr. Underwriter Mrkt. & Training
Mgr. Reserv. Sales Training
Mgr. Staff Training & Org
Mgr. Training/US Systems
Mgr. Employment & Development
Mgr. Mgmt & Employee Dev (2)
Staffing and Training Mgr.
Mgr. OD & Human Resource
Mgr. Exec. Development
Mgr. Customer & Training
National Training Mgr.
Mgr. Education & Training
Mgr. Program Development
Mgr. Organizational Programs
Mgr. Technical Training
Training Mgr. Residence Div.
Mgr. Mgmt & Org'l Dev
Mgr. T & D (16)
Human Resource Services Mgr.
Training Manager (15)
Mgr. Group Sales Training
Customized Training
Mgr. Product Training
Mgr. Manufacturing HRD
Production Training Mgr.
Senior Mgr. Dev Consultant
Technical Training Mgr.
Mgr. Operations Training
Human Resource Dev Mgr. (3)
Mgr. Resources Development
Mgr. Trng & Communications
Mgr. Exec Education
Mgr. OD and Training

Directors

Dir. T & D (6)
Personnel Dir. (3)
Dir. of Training and Employment
Dir. of Organization Development
Dir. of Training and Education
Dir. Personnel Planning/Dev
Corporate Dir. of Personnel
Owner & Dir. of Training
Dir. of Program Development
Dir. of Educational Training
National Dir. Sales T & D
Dir. Sales Training
Dir. Employee Development
Employee Relations Dir.
Dir. Carlson Exc. Dev Center
Dir. of Training (6)
Dir. Human Resources (5)
Adult Development Dir.
Dir. Human Resources Dev
Dir. Staff Development
Executive Dir. (2)
Corporate Training Dir. (2)
Dir. of Inservice Training
Dir. of Education
Dir. of Marketing & Training
Dir. Corporate Development
Dir. of Customized Training
Corporate Dir. Human Resources

Presidents

President (35)
V P, Human Resources (2)
President/CEO
Vice President, Personnel
President/Owner

Administrators

Training Admin. (3)
Admin. Personnel Services
Employee Training Admin.
Personnel Administrator
Human Resource Admin.

Others (15)

Appendix D

Interview Questions

The objective of this interview is to find out what you can tell me about training needs assessment (TNA). You are one of the seven people (experts) that will be interviewed and the information provided will be used to design an instrument for data gathering.

An attempt will be made to answer the following questions:

a. In what ways can training needs be manifested?
b. When you decide to conduct a TNA, how do you start?
c. What are the components or parts that should be included in TNA? (what do you want to know)
d. What are the methods or techniques used?
e. What factors should be considered in conducting TNA?
f. How often and when should TNA be conducted?
g. Who should conduct TNA in an organization?
h. Other related concerns, if any?

The interview

In an attempt to seek solutions to the questions listed above, the following persons were contacted in a face to face interview.

1. David Bjorkquist	Professor, Ind Ed, U of MN
2. Gary McLean	Professor & Coord. T&D, U of MN
3. Theodore Lewis	Assist. Professor, Ind Ed, U of MN
4. Dick Swanson	Professor & Director T&DRC, U of MN
5. Jimmie Vetsch	Training By Finesse, Minneapolis, MN
6. William Neher	Neher Consulting Assocs, Inc. Mpls. MN
7. Karen Brown	Quest Learning Systems, St. Paul, MN
8. Brenda Tracy	Group Health Inc, Minneapolis, MN

Summary

a. Ways Training Needs Manifest Themselves

There is an agreement among the people interviewed that TNA should be conducted to take advantage of organizational performance opportunities (solve performance problems). Other indicators include records (accident reports, maintenance costs, grievances, annual reports) failure analysis, innovations (equipment or procedure), employee morale, lack of skill and/or to perform, and line management complaints.

b. How Do You Start the Process of TNA?

Statistical process control (SPC), quality circles, and a system view of the job and organization (input, process and output) are among several approaches that could be used. The people (peers, individual, subordinates, supervisors and staff managers) should be interviewed to understand and confirm the problems. By so doing, the perspectives of the current and desired expectations could be analyzed for discrepancies, and which of the problems are training or system related.

c. Components or Parts Included in TNA

Seek information about the type of problem (training or system), causes of problems (attitude, environment, knowledge or skill), management's perspectives and expectations, the objectives or goals of the organization, resources available, previous training efforts, and how the problems relate to performance.

d. Methods or Techniques Used.

The methods suggested were in two categories (subjective or objective). The subjective types include interviews, observations, focus groups, and supervisor's report. The objective type include gaps analysis, test, survey questionnaire, records, delphi technique, nominal group technique, and brainstorming.

e. What Factors Should be Considered in Conducting TNA?

There doesn't seem to be serious agreement here. Time constraints, cost of doing it and cost of NOT doing it, the nature of the job, condition at present performance versus desired condition and gap created, information sources available, the situation of the organization climate, and outcome expectation.

f. How Often and When

Most recommended a continuous process and as the opportunities (problems) exist. A yearly approach that is synchronized with strategic planning should be done even if no problems exist.

g. Who Should Conduct TNA in the Organization?

The person with the competence (knowledge and skill), responsibility (authority), and interest of the organizational success. This may be the workers, consultants (internal or external), staff of the human resource department, or management.

h. Other Concerns

The accuracy of the information received is important and as a recommendation multiple sources should be used. Also, the Client must be fully kept up-to-date on the process to guarantee their involvement. One caution according to one of them was that "training does not have to be justified on the basis of obvious needs."

Appendix E

USE OF TRAINING NEEDS ASSESSMENT (TNA)
IN BUSINESS AND INDUSTRY

Please complete this questionnaire by Friday, May 25, 1990, and return it in the enclosed stamped, self-addressed envelope to:

Training and Development Research Center
University of Minnesota
1954 Buford Avenue
St. Paul, MN 55108

1. Current job title _____

For the following questions, check the one that <u>best</u> fits.

2. In what type of business is your organization involved? (check the one that is <u>most</u> appropriate)

___ Service producing (public utilities, health care, education, public administration, finance, etc.)
___ Good producing (manufacturing, construction, etc.)
___ Natural resources (mining, agriculture, fishing, etc.)
___ Trading (wholesale, retail, etc.)
___ Other: please specify _____

3. Do your responsibilities include approval/disapproval of new training programs in your organization?

___ Yes
___ No

4. Are training needs assessments (TNA) used in your organization?

_____ Yes
_____ No

If <u>NO</u>, please rank the following as reasons TNA is not used, in order of importance (use 1 = high and 5 = low)

_____ Lack of information on conducting TNA
_____ Management skepticism about the effectiveness of TNA
_____ No time to do a TNA
_____ Lack of sufficient resources
_____ Other: please specify _____

If you answered <u>YES</u> to item 4, please continue to item 5.
If you answered <u>NO</u> to item 4, you may stop here and return the questionnaire. Thank you.

5. Do you personally conduct training needs assessments?

_____ Yes
_____ No

If NO, who conducts it? (specify title) _____

How often are TNA conducted? (check one)

_____ yearly
_____ monthly
_____ quarterly
_____ Other: please specify _____

6. How often do you consider the following factors in conducting training needs assessment? Circle your response. (1 = never, 3 = sometimes, 5 = always)

	Never				Always
Organizational goals	1	2	3	4	5
Type of training needed	1	2	3	4	5
Time requirement	1	2	3	4	5
Strategic planning	1	2	3	4	5
Management views	1	2	3	4	5
Employee needs	1	2	3	4	5
Organization mission statement	1	2	3	4	5
Nature of the job	1	2	3	4	5
Resources available for project	1	2	3	4	5
Business needs	1	2	3	4	5
Climate of the organization	1	2	3	4	5
Expected outcome	1	2	3	4	5
Relationship to performance	1	2	3	4	5

7. Indicate the level of importance for each of the following indicators of organizational performance in conducting training needs assessments. Circle your response. (1 = low, 3 = moderate, 5 = high)

	Low				High
Records (accident, grievance)	1	2	3	4	5
Failure analysis	1	2	3	4	5
Innovations (equip. or procedure)	1	2	3	4	5
Employee morale	1	2	3	4	5
Skill and knowledge	1	2	3	4	5
Line management complaints	1	2	3	4	5
Productivity reports	1	2	3	4	5
Employee test results	1	2	3	4	5
Repair or rework cost records	1	2	3	4	5
Deviations from projected targets	1	2	3	4	5
Performance opportunities	1	2	3	4	5
Waste of material and time	1	2	3	4	5

8. Which of the following potential outcomes of TNA would you use to improve the status of training in your organization? (check all that apply)

___ Write a return-on-investment report

___ Hold an annual interview with upper level management

___ Tie training into overall company strategies and goals

___ Have executive overviews of all new programs before they are implemented

___ Involve senior management in content development and delivery of training programs

___ Provide a mission statement for the training unit that promotes better communication and team work

___ Soliciting trainee input about their expectations

Continue on next page

9. For each of the following methods listed below, indicate on a scale of 1 to 5 (1 being never and 5 being often), your current and desired use. Circle your response.

Current use					Methods used to determine training needs	Desired use				
Never				Often		Never				Often
1	2	3	4	5	Management request	1	2	3	4	5
1	2	3	4	5	Staff conferences	1	2	3	4	5
1	2	3	4	5	Analysis of job requirements	1	2	3	4	5
1	2	3	4	5	Consideration of current and projected changes in business	1	2	3	4	5
1	2	3	4	5	Interviews (structured or unstructured)	1	2	3	4	5
1	2	3	4	5	Standardized survey/questionnaires	1	2	3	4	5
1	2	3	4	5	Custom designed survey/questionnaire	1	2	3	4	5
1	2	3	4	5	Intuition of training personnel	1	2	3	4	5
1	2	3	4	5	Safety records analysis	1	2	3	4	5
1	2	3	4	5	Assessment centers	1	2	3	4	5
1	2	3	4	5	Work samples	1	2	3	4	5
1	2	3	4	5	Review of annual reports	1	2	3	4	5
1	2	3	4	5	On-site observation of job performance	1	2	3	4	5
1	2	3	4	5	Delphi technique	1	2	3	4	5
1	2	3	4	5	Nominal group technique	1	2	3	4	5
1	2	3	4	5	Critical incident analysis	1	2	3	4	5
1	2	3	4	5	Task analysis	1	2	3	4	5
1	2	3	4	5	Customer comments	1	2	3	4	5
1	2	3	4	5	Skill and personnel inventory	1	2	3	4	5
1	2	3	4	5	Management By Objectives (MBO)	1	2	3	4	5
1	2	3	4	5	Performance standards	1	2	3	4	5
1	2	3	4	5	Standard tests	1	2	3	4	5
1	2	3	4	5	Employee request	1	2	3	4	5
1	2	3	4	5	Training committees	1	2	3	4	5
1	2	3	4	5	Other Specify_____	1	2	3	4	5

Thank you very much for your cooperation.